DOCUMENT RESUME

ED 392 132 EA 027 358

AUTHOR Ananda, Srijati M.; And Others
TITLE Skills for Tomorrow's Workforce.
INSTITUTION Far West Lab. for Educational Research and Development, San Francisco, Calif.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Dec 95
CONTRACT RP91002066
NOTE 9p.
AVAILABLE FROM Far West Lab. for Educational Research and Development, 730 Harrison Street, San Francisco, CA 94107-1242.
PUB TYPE Collected Works - Serials (022) -- Information Analyses (070)
JOURNAL CIT Policy Briefs; n22 Dec 1995

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Standards; *Educational Change; Elementary Secondary Education; *Employment Potential; Industry; *Job Skills; *Labor Force Development; Performance; Public Education; School Business Relationship; School Role; *Standards; State Action; Student Evaluation; Vocational Education

ABSTRACT

Over the last decade, concern over the nation's global economic status and the role of public education in preparing workers has led to a push for standards reform. Two converging reform strategies have emerged: (1) to create a voluntary system of academic standards for K-12 students, and (2) to create a voluntary system of industry-skill standards for individuals planning to enter certain industries and occupations. The challenge facing policymakers is to determine how and to what degree academic and industry skill standards systems should be integrated. To make sound decisions, policymakers need to understand the complexities involved in standards-based reform and cross-sector collaboration. This policy brief reviews the issues surrounding standards reform, with a focus on the use of industry standards. It discusses the history and evolution of the role of schools in worker preparation, describes types of standards currently under development, proposes ways to create a more coherent standards infrastructure, and elaborates on the tensions that must be navigated at various stages of development and implementation. The standards-based reform plans of Arizona, California, Nevada, and Utah are also described. A conclusion is that other related education and worker-preparation-program reforms are equal in importance to setting standards. Methods used by the National Health Care Skill Standards Project, directed by Far West Laboratory, are highlighted. A list of contacts for the four states is included. (Contains 21 references.) (LMI)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 392 132

FAR WEST LABORATORY

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

POLICY BRIEFS

DECEMBER 1995

NUMBER TWENTY-TWO

Skills for Tomorrow's Workforce

by Srijati M. Ananda, Stanley N. Rabinowitz, Lisa Carlos and Kyo Yamashiro

The Status of Standards Reform

Over the last decade, concern over our global economic status and the role of public education in preparing workers has led to a push for standards reform. Two converging reform strategies have emerged: 1) to create a voluntary system of *academic* standards (e.g., in math, science, English, civics) for students in kindergarten through twelfth grade, and 2) to create a voluntary system of *industry skill* standards that specify prerequisite skills for individuals planning to enter certain industries and occupations (e.g., electronics, health care, printing, human services).

Standards-driven reform is not without controversy. The notion of national academic standards, synonymous in many minds with federal efforts such as *Goals 2000: Educate America Act of 1994*, raises concern that local autonomy will be jeopardized. Meanwhile, industry skill standards, when linked to public school curricula, trigger concerns that schools will simply become a training ground to ensure better products and services.

Far West Laboratory for Educational Research and Development serves the four-state region of Arizona, California, Nevada, and Utah, working with educators at all levels to plan and carry out school improvements. On December 1st, Far West Laboratory joined with Southwest Regional Laboratory to become WestEd.

The question is not so much whether academic or industry skill standards should exist. They already do — at state, local, and federal levels. At issue is who should be setting standards, how they should be implemented, how the multiple and diverse standards development efforts should be integrated, and which types of standards will best improve learning and ensure a high-performing workforce.

Currently, business and education officials are joining forces to use industry skill standards as an important tool for integrating vocational and academic curricula among secondary, post-secondary and workplace education programs. While many concur that a coherent system of academic and industry standards makes sense, tensions arise over who should lead the shaping of such a comprehensive effort: educators? business leaders? parent coalitions?

Business has asserted greater influence over public schooling in recent years, citing as motivation its contribution to the taxbase and its need to maintain economic competitiveness through well-prepared workers. Some are concerned that an industry-dominated agenda, driven by market considerations, would sacrifice, over time, a well-rounded education. But most, including business leaders, acknowledge that schools must also prepare students to be literate citizens, able to contribute to their communities and make informed decisions as voters.

The challenge facing policymakers is to determine how and to what degree academic and industry skill standards systems should be integrated. To make sound decisions, policymakers need to understand the complexities involved in standards-based reform and cross-sector collaboration.

This *Policy Brief* reviews the issues surrounding standards reform, with a particular eye on the use of industry standards. It discusses the history and evolution of the role of schools in worker preparation, describes types of standards currently under development, proposes ways to create a more coherent standards infrastructure, and elaborates on the tensions that must be navigated at various stages of development and implementation.

The Past: A Dual Track System

Throughout the years, school reforms have more or less paralleled fluctuations in labor market demands. During the industrial revolution at the turn of the century, for example, educational goals reflected the skills needed by the manufacturing industry: e.g., a seventh or eighth grade level of literacy and a day or two of skill training (Tucker, 1995). Meanwhile, those training for management or professional positions were given more extensive general education with few job specific applications.

Over time, a two-tiered system evolved, comprising an academic

EA 027 358

BEST COPY AVAILABLE

track for college-bound students and a vocational track for the non-college bound. By providing the first federal funding specifically designated for vocational education programs, the *Smith Hughes Act of 1917* served to further reinforce this dual system.

The duality continued for several decades, with increased funding for vocational education coinciding with peak periods of economic activity (e.g., World-War II). However, concerns were raised that vocational track students were consigned to an inferior education. Later, this criticism expanded to question the quality of the entire educational system. Reports and studies of the last decade (*Nation at Risk*, 1983; *America's Choice: High Skills or Low Wages*, 1990) point to the high numbers of students entering the labor force without the requisite academic and work-related skills needed to succeed in an increasingly competitive workforce.

Disturbed by this trend, industry has led the push for reforms that equip students with the adaptable, higher level skills needed for a "high performance," decentralized workplace where workers are required to take on greater responsibility, collaborate effectively, and become more involved in decision-making processes. Several national reports in recent years underscore industry's demand for employees with competencies in these areas (Commission on the Skills of the American Workforce, 1990; CCSSO, 1995; SCANS, 1991).

The Present: Greater Integration

The move to create an integrated academic and vocational system is an attempt to address these high performance workplace needs. Since the early 90s, state and federal government proposals have aimed to upgrade the caliber of curriculum by creating a coherent system of aligned standards and assessments. These standards and assessments are designed to promote high level competencies through applied, work-based learning experiences.

The passage of the *Carl D. Perkins Vocational and Applied Technology Education Act (Perkins II)* in 1990 significantly advanced this concept of integrated academic and industry standards by encouraging broad-based consensus building. This pivotal law required vocational education programs to develop and implement a system of performance standards, assessment measures, and services that provide "strong experience in and understanding of all aspects of the industry students are preparing to enter, including planning, finance, management, technical and production skills, underlying principles of technology, community issues, labor issues, and health, safety and environment" (Perkins II).

Overseas examples also fueled support for standards. Successes of other standards and certification systems in industrialized nations such as Japan, Germany, Denmark and Canada led the Bush and Clinton Administrations to champion standards as the cornerstone of their education and labor reform agendas. In 1992, the U.S. Departments of Labor and Education jointly initiated funding for projects to develop industry skill standards in 22 diverse industries such as agricultural biotechnology, electrical construction, printing and health care. All 22 projects are expected to have final standards, as well as assessment & certification procedures, by Fall of 1996.

The standards movement reached new heights in 1994 when Congress passed three interlocking pieces of legislation: the *School-to-Work Opportunities Act*, *Goals 2000: Educate America Act*, and *Improving America's Schools Act*, which jointly promote the development of voluntary systems of national academic and industry skill standards and assessments.

In 1994, the U.S. School-to-Work Office, housed under both the U.S. Departments of Labor and Education, provided grants to help each state develop a comprehensive plan for students' school-to-career transition. This year, school-to-work implementation grants are providing "venture capital" to states whose comprehensive plans include, but are not limited to: partnering with multiple agencies and organizations; integrating school-to-work with other reforms, workforce development plans, and economic development plans; combining work-based and school-based learning; using portable skill standards and certification; and providing universal access to school-to-work programs.

The Future: Streamlining and Consolidation

Current Congressional proposals, such as block granting numerous programs to states, sends a clear message: Coordination is not enough. Several pending bills would *consolidate* over 100 vocational education, training, and school-to-work programs currently in place into a single workforce preparation block grant. Fueling this movement are studies such as a 1993 General Accounting Office report, which revealed that many of these programs duplicate services to targeted populations. Moreover, conflicting requirements and operating cycles hamper general service delivery. Opponents to block grants, however, worry that such efficiency efforts will go too far, leading to funding cuts that cripple needed programs.

Several proposals before Congress would create new funding streams, most likely sending block grants to the governor of each state. This would shift responsibility for such activities as negotiating allocation formulas and monitoring equity compliance from state departments of education to the governor or his/her designee. New relationships with the Governor's Office will need to be forged, not only by state departments

to facilitate strong state leadership, but by districts as well.

Tensions in the Standards Debate

Forging these new relationships will be made easier if a common level of understanding is reached about how standards are defined, developed and implemented.

Creating Common Definitions and Formats. Whether standards are academic or industry-related, they should convey expectations of what individuals should know and be able to do. Developing a consistent, high quality format for standards, however, has been hampered by a lack of consensus about what form standards should take, their purpose, and their level of detail. Surprisingly little agreement has been reached even within projects sharing the same goals and funding sources. Existing standards differ significantly in breadth, depth, specificity and many other important dimensions, largely due to the prevailing philosophy of the lead group responsible for development.

This confusion is a significant obstacle as groups of educational professionals, industry leaders and policymakers attempt to develop and implement academic and industry standards. In order to provide some clarity, a typology for standards currently under development is suggested in the box to the right.

To facilitate the standards development process, some suggest that jobs be grouped according to the skills needed to perform them, rather than grouping them according to their job titles or industry group (Tucker, 1995).

The Feasibility of Standards Reform. Supporters contend that a standards-driven instructional system, coordinated across industry and education, could benefit many cross-sections of society. Workers, for example, would have "portable" credentials giving them greater mobility to pursue positions with higher wages, better job security and opportunity for advancement. Employers would have uniform criteria to recruit, screen, and place employees more efficiently. Students would have a clearer set of directions to help them prepare and set goals for future employment. Educators would have guidelines for designing curriculum and instruction at a more consistent and higher level for all students. Finally, consumers would have an accountability infrastructure for judging the quality of performance by schools, programs, workers and students.

Types of Standards Currently Under Development

The following general definitions provide a typology of standards currently under development. These standards sometimes overlap and are best used in conjunction with one another, as part of an integrated system.

Core academic standards cover school subject matter areas such as mathematics, language arts and science, the necessary building blocks for functioning as a member of society as well as for developing career-related skills. An example of a science standard is one that requires a student to demonstrate that he/she "knows that by eating food, people obtain energy and materials for body repair and growth" and "can design a well-balanced diet."

Workplace readiness standards cover generic skills and qualities that workers must have in order to learn and adapt to the demands of *any* job. Recent studies (SCANS, 1991 and CCSSO Workplace Readiness Consortium, 1995, Revised) have pointed to interpersonal skills, critical thinking and problem-solving, communication, and information and technology skills as keys to success in the future workplace.

Program specific standards address the knowledge and skills needed for a particular program or career focus, such as humanities, arts, or industry-specific areas (e.g., health care, electronics, human services, printing). Within industry-specific standards, there are three additional layers: 1) *industry-core standards* that cover skills needed in nearly all the occupations of a particular industry; 2) *occupational family standards*, which include the skills and knowledge needed to perform functions across a family of occupations in a particular industry (a variant of occupational family standards examines common skills, or "cross-functional skills," not only within industries but across industries — e.g., retail skills cross over several industries); and 3) *job-specific standards*, which relate to skills of a specific occupation. In the agricultural biotechnology field, for example, a technician is required to have certain job-specific technical skills such as the ability to "maintain and analyze fermentation materials" (National FFA Foundation, 1994).

Each type of standard listed above can take the form of a content or performance standard. *Content standards* refer to what we expect individuals to know and be able to do (Kendall & Marzano, 1994). Regardless of the intended use, content standards should consist of two parts — cognitive, indicating the type of knowledge expected, and behavioral, which specifies how a student applies that knowledge. *Performance standards* indicate levels of achievement or competency within a content area, e.g., advanced, proficient and basic.

But critics remain skeptical. Apart from philosophical concerns mentioned earlier, many worry about the ability of a standards-driven system to produce universally positive results. They fear that a system of standards, without the resources necessary to carry out genuine changes, will simply raise expectations without leading to any real results.

Several related implementation issues exist. For example, how will those at the school level be aware of, or be able to adopt, the numerous academic and industry skill standards being developed at the national, state and local levels? Others point out that most service providers currently lack the training and capacity necessary to support students and workers in developing the skills required by new standards. Is it realistic, for example, to expect that teachers will have the appropriate professional development and the time necessary to upgrade their instructional strategies to address both vocational and academic standards? If not, how long will it take to retrain them, how much will it cost, and who will pay?

Coalition Building. Policymakers who have built support for standards have typically done so by arguing they will be created through a broad-based deliberative process. Development should include balanced representation from all constituencies that have a direct material interest in the resultant standards (workers, labor organizations, K-12 and post-secondary educators, employers, professional associations, consumers, government).

Such consensus building is not simple. Education and business often lack a process for communicating among themselves. Partly, as a result, they have mixed success with collaboration that leads to genuine systemic reform. If the joint product of these disparate groups is to be useful and acceptable to all, it must be developed through careful facilitation and coordination. In the box to the right is an example of a standards development process that illustrates ways to optimize coalition building.

Deciding when different stakeholders' input should be included is another issue. Some propose that business constituencies direct the development of industry skill standards while education constituencies direct academic standards development. Others have proposed that educators lead all standards development up until the later high school years, at which time industry skill standards tend to play a more predominant role. Within the skill standards development process, similar questions exist. For example, at which point should the opinions of on-line workers, supervisors or employers be included?

Another source of tension is that standards, once developed, may serve different uses for different groups. Educators, for example, increasingly want less prescriptive and less narrowly defined standards. On the other hand, business typically desires a more specific level of standard articulation because of intended uses (e.g., to use skill requirements for hiring and promotion). Thus, "translation" between groups is often required for an integrated set of standards if all intended uses across constituencies are to be satisfied.

Equity. A driving force behind support for standards-based reform is the desire to raise capability levels of all students and workers. But is it reasonable to expect that all students and workers, including those who are limited-English proficient or physically or mentally disabled, meet the same set of high standards at the same time and in the same way?

Proponents believe that if standards are developed and widely disseminated, all segments of society will understand the requirements for reaching high levels of performance and, consequently, have a fairer opportunity for success. However, others worry that higher standards will only widen the gap between the haves and have nots because disadvantaged groups will not be provided the support necessary to achieve at higher levels. Equally important is developing assessment practices to measure whether standards have been met that consider the variable learning and performance styles of all students.

Equity problems have already surfaced in the performance-based assessment movement. In some cases, achievement gaps appear to widen between traditionally low and high performing groups as new forms of assessment are introduced. Some analysts predict that because of legal protections ensuring equal educational access for females, minority group members, and persons with handicaps, some proposed sets of standards and related assessment systems may be challenged under existing civil rights laws (Pullin, 1994). These standards may be challenged for their potential ability to lead to exclusion from certain job or educational opportunities. Such a scenario underscores the importance of consulting with the special education or the second-language development community during the standards and assessment development process.

Continual Updating. Knowledge and skill requirements are constantly changing in the workplace. For standards to be maximally useful, development efforts must balance current business needs with anticipated future needs. Standards should not be static; given the rapid pace of industrial transformation, they should be continuously updated to reflect current industry and employment realities. This updating is consistent with business organizational change strategies that promote

continuous improvement, such as Total Quality Management.

At the same time, standards cannot be so future-oriented that they produce employees without currently needed skills. A 1995 survey of over 4,000 private firms conducted by the National Center on the Educational Quality of the Workforce found that, contrary to popular opinion, "high performance" work systems are still more the exception than the rule. The demand is for standards that are both grounded in current workforce conditions and reflective of likely, as opposed to highly speculative, future needs.

Today's technology can play a major role in ensuring that standards stay current. Databases and on-line networks can be used to update, disseminate, and validate standards before they become obsolete or dated.

Portability of Certification. Researchers argue that national voluntary standards are key to preparing an internationally competitive workforce. For the most part, the business community also supports centralized, nationalized skill standards and associated assessments. Unlike other countries, however, education and training in the U.S. is highly decentralized and does not lend itself readily to a top-down approach. This means that a voluntary national system of standards-based certification and accreditation must allow states and localities the flexibility to determine for themselves what students and workers should know and be able to do. But in order for certification and accreditation to be portable across states and regions, some degree of local flexibility may have to be sacrificed.

Standards Development in the States

To develop a skill standards and assessment system, state leadership

One Approach to Standards Development Through Coalition Building

Policymakers who wish to adapt industry skill standards and integrate them into their other educational reform efforts, may wish to follow the methodology used by the National Health Care Skill Standards Project, directed by Far West Laboratory. Several lessons were learned during the course of this project, including:

Don't Reinvent the Wheel. Gather any analyses or related research that helps to identify the specific skills required in the industry, within and across specific occupations or occupational clusters. Review work done by other professional associations or agencies in developing sets of competencies required by industry. This research can be synthesized and summaries drafted that are categorized by skill area. These summaries and existing examples of standards could be organized in a project database.

Create an Inclusive Drafting Process. Bring together stakeholders (e.g., representatives from industry, labor, and education, parents and students) to begin drafting industry standards. Convene separate committees, representing an array of expertise relevant to the skills necessary for the industry, the designated occupational cluster, and/or individual occupations. Drawing on the skill area summaries, facilitated group discussion, and their own expertise, members of committees then formulate a draft version of the standards, to be subject to review and validation.

Ensure Validity and Clarity of Standards Using Multiple Forums. To ensure conceptual soundness and broad applicability, the review process should be quite extensive and include multiple methods. For example:

- *External Review.* Convene a large "Standards Review Committee" to review the draft standards, including a cross-section of representatives (not originally involved in the drafting of the standards) from professional associations and labor organizations, college educators and practitioners, from various geographic regions and industry sites. Recommendations from these members should be collected, summarized, and qualitatively and quantitatively analyzed.

- *Survey.* From the analyses of the recommendations, a more focused survey can be conducted, in which a group of targeted industry experts, educators and practitioners across the nation are surveyed to evaluate the relevance and essentialness of each standard. This process ensures that additional perspectives are incorporated. These surveys are also summarized, analyzed and results added to the project database.

- *Focus Groups.* Finally, several focus groups should be conducted with workers and supervisors at industry sites, selected along a variance of dimensions (large, medium small; urban, suburban, rural; private, public, non-profit; etc.). Results from these focus groups are integrated into the standards, thereby improving precision of language, credibility, clarity and the richness of information.

Refine Standards by Piloting with Select Groups. Once the standards have been appropriately reviewed and validated in this iterative process, select groups can pilot test the standards to assess the "usability" of the standards at local levels.

is imperative. States are making progress developing skill standards systems. A number are working closely with industries to define the skills required in the modern workplace (Ganzglass and Simon, 1993). Several states have governance structures, such as state skill standards boards, to provide assistance in such work as developing and implementing skill standards and establishing partnerships between schools and industries. Only a few, however, have begun to link skill standards with academic standards through various collaborative means and have begun to develop certifications that lend themselves to portability.

According to a 1993 survey of state vocational-technical education agencies and their use and development of skill standards, 48 states use occupational skill standards for curriculum development, 47 for articulation between secondary and postsecondary programs, and 42 for assessing acquired skills (Institute for Educational Leadership, 1993). A substantial portion of the state-level skill standards activities are being conducted through consortia, such as the Vocational Technical Education Consortium of the States, with member states regularly reviewing and adding to the pool of standards. Despite these reports of widespread development of, use of, and collaboration on skill standards across the states, no *one* set of skill standards has been adopted across all states, and no more than half are using a common set of standards for a particular occupation (Wills, 1994).

States in the FWL Region

Two of the four states in the *Far West Laboratory* (FWL) region, Arizona and Utah, received federal *School-to-Work* implementation grants this year ($3.6 million and $2.4 million, respectively). The remaining two states, California and Nevada, while they did not receive federal *School-to-Work* funds this year, have designed alternative methods for continuing work in this area.

Arizona. Since 1989 Arizona has conducted occupational analyses to determine the occupational and academic skills needed to perform particular occupations. These skill standards are intended to be compared with the new academic subject matter standards (to replace the state's Essential Skills, i.e., content standards) currently under development at the state level. According to the state's school-to-work proposal submitted by the Governor's Office, a comparison with applicable products from the national skill standards projects, as well as those produced by other associations, is also intended, to keep standards current and comprehensive.

The statewide school-to-work plan describes a comprehensive system emphasizing a high level of basic skills and academic knowledge integrated with general workplace skills and initial occupational skills to prepare all 12th grade students for postsecondary education, postsecondary training or entry into the workforce. The system will emphasize career guidance and will provide work-based learning opportunities and a diverse set of career pathways to all students. It is planned that all students will have received a certificate of initial mastery (CIM) in their chosen career path or major by the 10th grade and all 11-12th grade students will complete a high school diploma, career portfolio and workplace-specific or higher education placement test. Local planning and implementation grants will be awarded in Winter 1996.

California. California has outlined an extensive School-to-Career system, in which issues surrounding the integration of academic and industry standards are specifically addressed. This system was outlined by the Governor's School-to-Career Task Force, a collaboration of industry, education, state agency, and business representatives. The California Department of Education is currently collaborating in the development of a template for performance-based assessments, using grade-level content standards. This template, part of the Career-Assessment Technical Program (C-TAP), will be adaptable to new and emerging career pathway programs. The template is based on both content and performance standards and includes portfolios, on-demand problem solving, and other performance-based activities.

In addition, State Superintendent Delaine Eastin has proposed the Golden State Achievement Certificate as a requirement for graduates of the class of 2004. The Certificate is part of the Department's new Challenge initiative, which includes career preparation studies as part of the graduation requirements for all students. As such, the Certificate would address workplace readiness, as well as academic skills.

Nevada. Nevada's state legislature has provided $2 million in fiscal years 1996 and 1997 to implement a statewide school-to-work transition initiative. Nevada's state planning team — made up of members from across state agencies, community colleges, labor organizations, etc. — the Nevada Workforce Agencies, has developed, as part of the Nevada 2000 school reform plan, a school-to-work transition plan in which the Nevada Department of Education along with other state organizations and associations, will identify necessary skills, learning contexts, and work-based learning opportunities to enable students to "compete in a global economy and exercise the rights and responsibilities of citizenship" (School-to-Work Goals from the *Nevada 2000* plan).

This school-to-work initiative, because of the availability of state funds, has entered the implementation stages. Four regional partner-

ships are established to provide local leadership and a governance system to serve all geographic areas of the state. The Nevada Workforce Agencies also developed and approved the criteria in the application guidelines for local implementation grants. The guidelines provide a structure for providing career development to all students and a curricular structure emphasizing career paths/majors, secondary to postsecondary education program articulation, and work-based learning opportunities.

As yet, there has not been a strong focus on industry skill standards, although their state funding is fostering considerable local momentum in broad-based standards development. Their state planning team has also recently expanded its membership to include business community representation, in order to address some of the industry skill needs.

Utah. Utah's statewide school-to-work plan, awarded a $2.4 million implementation grant for this year, is designed to be closely aligned with three other major statewide initiatives: its Five-Year Strategic Plan, its Centennial Schools program to promote the innovative restructuring of schools, and the development of a core curriculum guided by high standards. A key part of its school-to-work effort is a program that provides each student with a Student Educational Occupational Plan (SEOP), which includes a career major, career awareness and exploration opportunities, and work and/or service learning experiences.

The state has placed a strong emphasis on technology. They will also be using their state electronic network, UTAHNET, to integrate and connect various information and technical assistance resources to schools and career preparation programs. Distance learning programs will assist students in rural areas.

Skill standards development is occurring in cooperation and consultation with employers and other stakeholders. Student skills will be certified and portable, by integrating industry and academic standards and learning from the standards other national associations, national standard's projects and others have already developed and implemented.

The state also provides local school districts with categorical funding to ensure that Applied Technology Education programs have the resources for equipment, curriculum, and training updates. Ten percent of those funds are allocated on the basis of documented student placement; another ten percent is allocated on the basis of their skill certification.

Conclusion

States currently face a formidable challenge. The development and integration of standards remains complicated and largely uncharted. What is clear is the importance of creating standards with all interested parties at the same table. Standards have a greater chance of being widely supported, meaningful and practical when they are developed through a carefully facilitated process that considers the needs and interests of all sides.

Setting standards is important, but it is only a first step. Equally important are other related education and worker preparation program reforms, such as implementing performance-based assessments and certifications, incentive systems and professional development. When aligned to support the attainment of standards, many hope that together these efforts will create an effective infrastructure to guide the improvement of all students' transitions through school and the world of work.

Many voice a familiar caution that raising standards without raising resources will ultimately prove to be an exercise in futility. Even so, laying out a clear vision of what students need to know and do in order to succeed, others say, is not only fair but ought to be a reform strategy to which everyone can agree.

The authors would like to thank Barbara Nemko & Sandra Sarvis for overall comments and revisions. In addition, we would like to thank the State Departments and Governor's Offices in our four-state region for their assistance and input in this Brief.

State Contacts

Arizona:

William Morrison, Director,
School-to-Work Division
Governor's Office of Community and Family Programs
(602) 542-2315

Charles Losh, Director of Vocational Education
School-to-Work Division
Arizona Department of Education
(602) 542-5106

California:

Robert Hotchkiss, Deputy Director
Program and Policy Development
Employment Development Department (EDD)
Governor's Office
(916) 654-8656

Sonia Hernandez
Chief Advisor and Policy Coordinator to the Superintendent of Public Instruction
(916) 657-5485

Nevada:

Phyllis Rich, Director
Occupational and Continuing Education
Nevada Department of Education
(702) 687-3144

Barbara Weinberg, Administrator
Department of Employment, Training & Rehabilitation
(702) 687-4310

Janet Eckle, State Coordinator, North School-to-Work
Nevada Department of Education
(702) 888-0455

Utah:

Scott Hess, Coordinator
School to Careers
Department of Education
(801) 538-7850

Lynn Jensen, Coordinator
Integrated Curriculum and Student Services
Department of Education
(801) 538-7851

References

Brustein, M., & Mahler, M. (1993). *AVA guide to the school-to-work opportunities act*. Alexandria, VA: American Vocational Association.

Carl D. Perkins Vocational and Applied Technology Act of 1990, 10 U.S.C. 2321.

Commission on the Skills of the American Workforce. (1990, June). *America's choice: High skills or low wages!* Rochester, NY: National Center on Education and the Economy.

Conference Board, Inc. (1995, June). Schools: Should business set their agenda. *Across the Board*, 32(6). p. 16.

Council of Chief State School Officers. (1995, July). *Consensus framework of workplace readiness, 1995 revision*. Washington, DC: Author.

Ganzglass, E., & Simon, M. (1993). *State initiatives on industry-based skill standards and credentials*. Washington, DC: National Governor's Association.

General Accounting Office. (1993, June). *Multiple employment training programs: Conflicting requirements hamper delivery of services*. Washington, DC: Author.

The Institute for Educational Leadership (1993) *An overview of skill standards systems in education and industry, Volume I*. Washington, DC: Author.

Kendall, J.S. & Marzano, R.J. (1994). *The systematic identification and articulation of content standards and benchmarks*. Aurora, CO: Mid-continent Regional Educational Laboratory.

Lee, C., Casello, J., May, T., Bryant, C., Foster, R., Goodwin, W., & Meeham, M. (1994). *Occupational skill standards projects*. Washington, DC: U.S. Department of Education and U.S. Department of Labor.

McCarthy, K. (1994). *School-to-work. A guide for state policymakers*. National Conference of State Legislatures and Jobs for the Future. Investing in People Project, Issue Paper No. 3.

Morra, L. (1993). *Occupational skill standards: Experience shows industry involvement to be key*. Gaithersburg, MD: U.S. General Accounting Office.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Government Printing Office.

National FFA Foundation. (1994). *National voluntary occupational skill standards: Agricultural biotechnology technician*. Washington, DC: Author.

Pearlman, K. (1993) *The skill standards project and the redesign of the nation's occupational classification system*. Washington, DC: U.S. Department of Labor.

Pullin, D.C. (1994, Spring). Learning to work: The impact of curriculum and assessment standards on educational opportunity. *Harvard Educational Review*, 64(1).

Resnick, L., & Nolan, K. (1995, March). Where in the world are world-class standards? *Educational Leadership*, 52(6).

Secretary's Commission on Achieving Necessary Skills (1991). *What work requires of schools: A SCANs report for America 2000*. Washington, DC: U.S. Department of Labor.

Sheets, R.G. (1994). *Skill standards systems in Germany, Japan, and Canada: Implications for a U.S. skill standards system*. Washington DC: National Governor's Association.

Tucker, M. (1995). *On occupational clusters: Early thoughts on organizing the work of the National Skill Standards Board*. Rochester, NY: National Center on Education and the Economy.

Wills, J.L. (1994). *Skill standards in the U.S. and abroad*, (four volumes). Washington, DC: Institute for Education Leadership.

This *Policy Brief* is published by the Far West Laboratory for Educational Research and Development. The publication is supported by federal funds from the U.S. Department of Education, Office of Educational Research and Improvement, contract #RP91002006. The contents of this publication do not necessarily reflect the views or policies of the Department of Education. Reprint rights are granted with proper credit. For more information, please contact the Policy Support Program at:

FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH
AND DEVELOPMENT
730 HARRISON STREET
SAN FRANCISCO, CA 94107-1242
(415) 565-3000

OERI
OFFICE OF EDUCATIONAL
RESEARCH AND IMPROVEMENT
U.S. DEPARTMENT OF
EDUCATION